

FCC MAIL SECTION

Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

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ORIGINAL

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In the Matter of)
Amendment of the rules relating to) MM Docket No. 92-305 ✓
permissible uses of the vertical) RM-8066
blanking interval of broadcast) RM-8067
television signals.)

REPORT AND ORDER

Adopted: May 5, 1993

; Released: May 10, 1993

By the Commission:

Introduction

1. The Commission herein amends Sections 73.682 and 73.699 of its Rules to provide for optional transmission of a ghost-canceling reference ("GCR") signal on line 19, and enhanced closed-captioning and other broadcast-related information on line 21, field 2, of the vertical blanking interval ("VBI").

Background

2. The Notice of Proposed Rule Making¹ ("Notice") in the above-entitled matter was issued in response to petitions from the Consumer Electronics Group of the Electronic Industries Association ("EIA/CEG") and the Advanced Television Systems Committee ("ATSC"). The former (in RM-8066) requested amendment of the Commission's Rules to provide for enhanced closed-captioning and other broadcast-related information services on line 21, field 2 of the VBI. The latter (in RM-8067) requested amendment of the Rules to substitute a GCR signal in place of the vertical interval reference ("VIR") signal currently transmitted on line 19 of the VBI. Both proposals received widespread broadcast industry support. The two petitions are being addressed in this consolidated rulemaking proceeding because each required a change in policy concerning use of the VBI and because both are a matter of high priority, inasmuch as they would significantly enhance conventional NTSC television service.

1 8 FCC Rcd 90 (1993). The Notice provides detailed definitions and descriptions of the technical terms used in this proceeding. To conserve space they are not reiterated here.

Comment Summary

3. All of the parties filing comments in response to the Notice expressed support for one or both of the proposals. Thus, EEG Enterprises ("EEG"), Motorola, Inc. and the National Captioning Institute ("NCI") supported the line 21 proposal. Mitsubishi Consumer Electronics America, Inc ("Mitsubishi"), the Lloyd E. Rigler-Lawrence E. Deutsch Foundation, Thompson Consumer Electronics and the WGBH Educational Association ("WGBH"), while interested principally in the line 21 proposal, also made brief statements supporting the line 19 proposal. The Advanced Television System Committee ("ATSC") and the North American Philips Corporation ("Philips") supported the line 19 proposal. A. C. Nielsen ("Nielsen"), the Association for Maximum Service Telecasters ("MSTV"), Capital Cities/ABC ("CC/ABC"), the Electronic Industries Association's Consumer Electronic Group ("EIA/CEG") and the National Association of Broadcasters ("NAB") supported both proposals. Reply comments were filed by EIA/CEG, Caption America, Cohen, Dippel and Everist, P.C. ("CDE"), Nielsen, Mitsubishi, MSTV, NCI and WGBH. The reply comments of Caption America supported the line 21 proposal and are discussed at length, infra. The reply comments of CDE support the comments of CC/ABC. The other reply comments reinforce initially-held positions.

4. Line 19 ATSC, MSTV, NAB and Nielsen supported the adoption of Philips' GCR signal as the industry standard for NTSC television. Most of the commenters noted the exhaustive testing which led to the unanimous selection of the Philips' signal as being clearly superior to the other GCR signals tested. Philips observed that while it was possible that a better GCR signal might someday be discovered, such an eventuality was unlikely during the expected lifetime of NTSC television in the United States. Philips further noted the flexibility inherent in its system, which will permit hardware designers to choose different conditions of speed and accuracy.² NAB urged the Commission to proceed with the regulatory approach suggested in the Notice, which was to reserve line 19 for the optional but exclusive of the Philips GCR signal by means of setting forth its technical parameters in an OET Bulletin, with a reference to the Bulletin being placed in the Rules.³

5. However, both NAB and CC/ABC noted that while the vertical interval reference ("VIR") signal that would be displaced from line 19 by the GCR signal was no longer used by the public, it was useful to broadcasters in maintaining television picture color quality in studio-transmitter links and in other portions of the program delivery system. This opinion was reinforced by the reply comments of CDE. Therefore, CC/ABC asked the Commission to permit relocation of the VIR signal to any of VBI lines 10 through 16 without specific authorization, inasmuch as lines 17 through 21 were generally used for other

2 Philips noted that reducing or eliminating airplane flutter may require greater speed, and dealing with fixed multipath conditions may require more accuracy.

3 A very similar approach was taken when the Commission adopted the rules for television stereophonic audio transmission in Docket No. 21323.

purposes.⁴ Moving the VIR signal to another line was supported by NAB as being easily achieved using modern VBI signal inserter equipment.

6. Line 21 Commenters addressing this proposal gave it their complete support. CC/ABC observed that using field 2 of line 21 would permit captioned information to be delivered at different speeds to suit different reading levels, as well as the possibility of captioning in a second language. EEG stated that caption decoder circuits being built into new TV receivers and VCRs already have the capability to respond to line 21 signals in field 2 provided the data format is the same as that in field 1.

7. However, EEG and WGBH noted that the Television Data System Committee ("TDSS"), a task force operating under EIA/CEG, has recommended some field 2 code changes which differ from the current line 21, field 1 code tables. The changes may prevent some of the TV receivers initially marketed under the Television Decoder Circuitry Act of 1990 Act from being able to receive line 21, field 2 information, but would permit the use of caption decoder technology for a wide range of valuable new Extended Data Services ("EDS").⁵

8. The Commission, in the Notice, specifically solicited comments on whether interference might result between enhanced closed-captioning on line 21, field 2 and "special signals" permitted on line 22, which are used for commercial and program identification. Nielsen, WGBH and EIA/CEG and Caption America addressed this question. All expressed the view that no adverse interaction was likely. WGBH explained that even in cases where "special signals" had inadvertently been placed on line 21, field 2, captioning on field 1 continued to be received without degradation. Questions in the Notice on whether any potential problems might be expected in implementing either the line 21 or the line 19 proposal were answered in the negative, with the exceptions of concerns expressed by NCI, infra.

9. The universal practice now in encoding line 21 is to intermix captioning and text data service information, with priority given to captioning automatically by the encoder on a real time basis. The Notice mentioned a proposal by NCI (in its comments on RM-8066) that the Commission include definitions of "captions," "text," and "extended data service ("EDS") information" in the Rules in order to clarify the priorities which should be followed in their transmission. NCI continued to support the proposed definitions in its comments, with the apparent view that captioning should always have priority on line 21, that caption-related text should have secondary priority, and that EDS should be tertiary (or last) in priority. However, EIA/CEG, Caption America, Mitsubishi, Thompson and WGBH expressed the

4 Section 73.682(a) (21) permits lines 17 through 20 to be used for the transmission of test signals, cue and control signals and identification signals.

5 The commenters do not appear to consider this compatibility problem very significant. The modification of initially-marketed closed-captioning equipped receivers is not discussed in the comments, but may be possible without significant cost.

opinion that the proposed definitions were ambiguous and not necessary to ensure captioning priority. MSTV initially supported NCI in its comments, but suggested deferring adoption of NCI's definitions in its reply comments.

10. Caption America observed that:

"Currently, transmission priority is given to captioning on Line 21, Field 1. Priority means that caption data, once encoded, may not be deleted and replaced by any other data. This prohibition applies even if the caption data is to be buffered and reinserted at some later time. To afford this same priority to Text Mode data, on either field, would necessarily mean that Text, once encoded, cannot be deleted downstream. Such a rule would give Text Mode data the same protection as Caption mode data, a status that Text Mode does not enjoy under Commission rules governing Line 21, Field 1..."⁶

Caption America questions how prioritizing text mode data (which it states is virtually never program-related) will enhance closed-captioning. Moreover, it variously refers to NCI's proposed definitions as "vague," "unusable," "inaccurate" and "unclear."⁷ However, it does support NCI in the belief that the term "additional text" in proposed Section 73.682(a) (22) (i) is misleading in that a caption is not a form of "text," as the proposed rule's use of the term "additional text" would imply. Thus, Caption America believes that the proposed rule should be amended to replace the term "additional text" with "text-mode data."

11. Lastly, NCI expresses concern that the addition of EDS information to already existing line 21, field 2 captions may offset the timing at which the captions were intended to be displayed with their associated television program.⁸ NCI argues that:

"...the proposed rule permits a broadcaster to provide 'additional text and extended data service' on a 'on a space available basis' without any qualification on the effect of the presence or insertion of EDS data on a line 21, field 2 caption's appear time."⁹

To preclude any potential problems in this regard, NCI recommends that the final rule contain the requirement that any text service or extended data service "not noticeably offset the time" in which a line 21 caption is to

6 Caption America reply comments, page 2.

7 Id., page 3.

8 NCI refers to this as the "appear time" (Comments, page 3).

9 Id., page 3.

appear.¹⁰

12. Caption America shares NCI's concern about possible delay in appear time but believes that NCI's proposed solution is unnecessary, too vague to be of value and not a matter which requires regulation. It notes that without defining what "noticeably offset" means, NCI's proposed rule is meaningless. Caption America further states that:

"We do not believe the Commission needs to provide regulation in the area of caption delay because captioners and encoder manufacturers have already codified adequate policies through the EIA/CEG's development of recommended practices. These recommendations take into account the complexities of data creation, insertion and buffering in a way much more suited to actual practice than NCI's proposed language."¹¹

In conclusion, Caption America agrees with the majority of commenters who believe that the rule should be adopted as proposed in the Notice, with the exception of the minor revision discussed in paragraph 10, supra.

Discussion

13. Line 19 We agree with the commenters that line 19 should be reserved for the optional but exclusive use of the Philips GCR signal. We believe that this action is highly desirable as a means of encouraging initial production of ghost-canceling-equipped TV receivers which will offer an immediate benefit to television audiences. The presence of any other signal on line 19 has the potential of confusing the ghost-canceling circuitry. Therefore, none will be permitted, including the VIR signal, after June 30, 1994. This delay is provided to give broadcasters ample time to relocate the VIR signal to another VBI line, if they desire, prior to the widespread availability of GCR-equipped TV receivers. Nevertheless, broadcasters may transmit the GCR signal immediately, if they desire.¹²

14. CC/ABC requests permission to employ the VIR signal on any of VBI lines 10 through 16. Under our current rules, those lines, plus lines 17, 18 and 20, may be used for telecommunications services such as the transmission of data and processed information. See Sections 73.646 and 73.682(a) (23). Further, these lines may also be used for other purposes upon prior approval by

10 Id., page 7.

11 Caption America reply comments, page 5.

12 The Commission suspended enforcement of line 19 restrictions contained in Section 73.682(a) (21) (iv) in an Order adopted October 22, 1992. Therefore, transmitting the GCR signal is permissible already, even in advance of the effective date of the new rules.

the Commission. Additionally, lines 17 through 20 may be used for the transmission of test signals, cue and control signals and identification signals. As a special case of a test signal, line 19 has been reserved for the transmission of the VIR signal, except for the developmental transmission of the GCR signal as explained in Footnote 12, supra.

15. With regard to modulation level, lines 17, 18 and 20 have a limit of 80 IRE¹³ when used for telecommunications services, but up to 120 IRE when used for test signals. The VIR on line 19 is limited to 90 IRE. Our rules do not specify what limits would be appropriate if lines 10 through 16 were used for other purposes, such as the transmission of test signals (telecommunications services are limited to 70 IRE on lines 10 through 12 and 80 IRE on lines 13 through 16). Notwithstanding these modulation limits, neither test signals nor telecommunications signals may degrade the regular program transmission of a television broadcast station.

16. Because the VIR signal apparently retains important value as an internal quality control technique and because the self-interests of broadcasters, in conjunction with our existing rules, should be adequate to prevent harm, we find that it is in the public interest to offer additional flexibility in the employment of VIR signals. Accordingly, pursuant to Section 73.682(a) (23) (vi), we approve the use of lines 10 through 16 for VIR signals at a modulation level not to exceed 90 IRE, provided that no observable degradation is caused to any portion of the visual or aural signals. We remind all parties that transmission of telecommunications services and test signals in the VBI is elective and of an ancillary nature. The resolution of any conflicts which may arise from the transmission of multiple services and signals is the responsibility of station licensees.

17. Line 21 We have reviewed the provisions of Section 73.682(a) (22), which relate to captioning on line 21, field 1 (and the first half of field 2) and believe they are satisfactory in their present form. First, subparagraph (ii) provides that when captioning is not transmitted, data may be transmitted in the same format provided it is of a broadcast nature. We believe Section 73.682 (which provides for the broadcast of captioning information) and Section 15.119 (which implements the provisions of the Television Decoder Circuitry Act of 1990¹⁴) make it very clear that line 21 is to be used primarily for captioning service.

18. Therefore, we have no reason to expect that the provisions for extended data service on line 21, field 2 will significantly alter the fundamental character of line 21 in terms of captioning priority. We believe broadcasters will continue to use line 21 responsibly for services in a manner consistent with the intent of the rules. For these reasons and because of the

13 "IRE" refers to a unit of linear scale measurement in which the relative amplitudes of the components of a television signal are referenced to zero at blanking level, with picture information falling in the positive domain, and synchronizing information in the negative domain.

14 6 FCC Rcd 2419 (1991).

ambiguities noted by Caption America, we do not believe that the definitions suggested by NCI are necessary. Therefore, we are adopting the rule as proposed, with the exception of the editorial revision suggested by Caption America.

19. We also agree with Caption America on the matter of caption "appear time." We do not believe, based on current industry practices and typical encoding equipment design that extended data services will significantly delay caption presentation.

20. Nonetheless, the Commission believes NCI's comprehensive response to the request for information concerning "any unforeseen or overlooked problems or circumstances"¹⁵ relative to the provision of enhanced closed-captioning on line 21, field 2 has, quite appropriately, identified potential problems which could arise in the future. Although we decline to adopt a specific "appear time" standard at this early stage of regulatory supervision, we do so because of existing industry practice, which appears to adequately address this concern. In the unlikely event that any unexpected technical problems arise, or any abuse of the new enhanced captioning rules develops, we intend to revisit this matter and take appropriate action.

Conclusion

21. The comments and reply comments filed in this proceeding clearly ratify the proposals made in the Notice. We conclude that only the substitution of "text mode data" for "additional text" in proposed Section 73.682(a)(22)(i) is necessary. Additionally, we are revising Section 73.682(a)(21)(iv) to permit transmission of the VIR signal on lines 10 through 16. Therefore, with the exceptions noted, the Rules are being revised as proposed in the Notice. The technical standards for the ghost-canceling reference signal are being released in OET Bulletin No. 68, concurrently with this Report and Order.

Regulatory Flexibility Act

22. A Final Regulatory Flexibility Analysis is contained in Appendix B of this Report and Order.

Ordering Clause

23. Therefore, IT IS ORDERED that pursuant to Sections 4(i) and 303(r) of the Communications Act of 1934, as amended, that effective June 30, 1993, Part 73 of the Commission's Rules and Regulations IS AMENDED as set forth in Appendix A. IT IS FURTHER ORDERED that this proceeding IS TERMINATED.

15 Notice, paragraph 11.

Additional Information

24. For additional information on this proceeding, contact James E. McNally, Jr., Mass Media Bureau, (202) 632-9660.

FEDERAL COMMUNICATIONS COMMISSION

Donna R. Searcy
Donna R. Searcy *WFC*
Secretary

APPENDIX A

Title 47 of the Code of Federal Regulations is amended as follows:

1. The authority citation for Part 73 continues to read as follows:
Authority: 47 U.S.C. 154 and 303

2. Section 73.682 is amended by revising paragraphs (a) (21) (iv) and (a) (22) (i), (a) (22) (i) (A), (a) (22) (i) (B) and by removing paragraphs (a) (22) (i) (C) and (a) (22) (i) (D) as follows:

§73.682 TV transmission standards.

(a) * * * * *
(21) * * * * *

(iv) Regardless of other provisions of this paragraph, after June 30, 1994, Line 19, in each field, may be used only for the transmission of the ghost-canceling reference signal described in OET Bulletin No. 68. Notwithstanding the modulation limits contained in paragraph (a) (23) (i) of this section, the vertical interval reference signal formerly permitted on Line 19 and described in Figure 16 of §73.699, may be transmitted on any of lines 10 through 16 without specific Commission authorization, subject to the conditions contained in paragraphs (a) (21) (ii) and (a) (22) (ii) of this section.

(22) (i) Line 21, in each field, may be used for the transmission of a program-related data signal which, when decoded, provides a visual depiction of information simultaneously being presented on the aural channel (captions). Such data signal shall conform to the format described in Figure 16 of §73.699 and may be transmitted during all periods of regular operation. On a space available basis, line 21 field 2 may also be used for text-mode data and extended data service information.

Note: The signals on Fields 1 and 2 shall be distinct data streams, for example, to supply captions in different languages or at different reading levels.

(A) A decoder test signal consisting of data representing a repeated series of alphanumeric characters may be transmitted at times when no program-related data is being transmitted.

(B) The data signal shall be coded using a non-return-to-zero (NRZ) format and shall employ standard ASCII 7 bit plus parity character codes.

Note: For more information on data formats and specific data packets, see EIA-608, "Line 21 Data Services for NTSC," available from the Electronics Industries Association.

* * * * *

3. Section 73.699 is amended by removing Figures 17B and 17C and by redesignating Figure 17A as Figure 17.

APPENDIX B

FINAL REGULATORY FLEXIBILITY ANALYSIS

As required by §603 of the Regulatory Flexibility Act, the Commission has prepared the following Final Regulatory Flexibility Analysis (FRFA) of the expected impact on small entities of the proposals suggested in this document. The Secretary shall send a copy of this Report and Order including the FRFA, to the Chief Counsel for Advocacy of the Small Business Administration in accordance with paragraph 603(a) of the Regulatory Flexibility Act (Pub. L. No. 96-354, 94 Stat. 1164, 5 U.S.C. § 601 et seq. (1981)).

Reason for Action

The rules amended in the Report and Order modify permissible use of the vertical blanking interval of broadcast television signals.

Objectives

This action is intended to improve the general quality of television service by providing for enhanced closed-captioning services and, secondary to that, other broadcast-related information services capable of depiction in an alpha-numeric format. Additionally, the rules permit the transmission of a special ghost-canceling reference signal that when used with TV receivers having the proper decoding circuitry, could eliminate much, if not all, picture degradation due to the reception of reflected, low amplitude TV signals.

Legal Basis

Authority for the actions taken in the Report and Order may be found in Sections 4 and 303 of the Communications Act of 1934, as amended, 47 U.S.C. §§ 154 and 303.

Reporting, Recordkeeping, and Other Compliance Requirements

None.

Federal Rules which Overlap, Duplicate, or Conflict with the Proposed Rule

None.

Description, Potential Impact and Number of Small Entities Involved

The services permitted by the new rules are entirely optional in character. However, their appeal to the public is likely to be such that most TV broadcast licensees will want to obtain the equipment with which to provide them. Thus, as a practical matter, the new rules would have an impact on some 1,500 licensees.

Any Significant Alternatives Minimizing the Impact on Small Entities and Consistent with the Stated Objectives

There are none.